IN THE CLAIMS

Please amend the claims as follows:

Claims 1-38 (Canceled).

Claim 39 (Currently Amended): A heat spreader comprising:

a layer of CVD diamond grown onto a diamond loaded (DL) material, the DL material comprising a mass of diamond particles in a matrix and having a surface with exposed diamond particles on which the layer of CVD diamond is grown, the diamond particles having a diameter of at least 10 μm, wherein the matrix is silicon, silicon carbide, ~~copper, aluminum, silver~~ or a mixture of these,

wherein the layer of CVD diamond is bonded to the exposed diamond particles of the DL material at least in part by epitaxy, and the grown layer of CVD diamond has an exposed surface with at least 30% of the exposed surface being occupied by diamond grains with a grain size of at least four times a thickness of the layer of CVD diamond.

Claim 40 (Previously Presented): A heat spreader according to claim 39, wherein the layer of CVD diamond is continuous and without uncontrolled pits or holes.

Claim 41 (Previously Presented): A heat spreader according to claim 39, which exhibits substantial epitaxy at an interface between the layer of CVD diamond and the exposed diamond particles of the DL material.

Claim 42 (Previously Presented): A heat spreader according to claim 41, wherein the epitaxy covers an area of the interface exceeding 30%.

Claim 43 (Previously Presented): A heat spreader according to claim 42, wherein the epitaxy covers an area of the interface exceeding 50%.

Claim 44 (Previously Presented): A heat spreader according to claim 43, wherein the epitaxy covers an area of the interface exceeding 60%.

Claim 45 (Previously Presented): A heat spreader according to claim 44, wherein the epitaxy covers an area of the interface exceeding 70%.

Claim 46 (Canceled).

Claim 47 (Previously Presented): A heat spreader according to claim 39, wherein the diamond grains occupy at least 50% of the exposed surface of the layer of CVD diamond.

Claim 48 (Previously Presented): A heat spreader according to claim 47, wherein the diamond grains occupy at least 60% of the exposed surface of the layer of CVD diamond.

Claim 49 (Previously Presented): A heat spreader according to claim 48, wherein the diamond grains occupy at least 70% of the exposed surface of the layer of CVD diamond.

Claim 50 (Previously Presented): A heat spreader according to claim 39, wherein the layer of CVD diamond comprises epitaxial diamond grains that provide at least 30% of the volume of the layer of CVD diamond.

Claim 51 (Previously Presented): A heat spreader according to claim 50, wherein the epitaxial diamond grains provide at least 50% of the volume of the layer of CVD diamond.

Claim 52 (Previously Presented): A heat spreader according to claim 51, wherein the epitaxial diamond grains provide at least 70% of the volume of the layer of CVD diamond.

Claim 53 (Previously Presented): A heat spreader according to claim 39, wherein the DL material is provided in a form of a layer with the layer of CVD diamond being grown on a major surface of the layer of DL material.

Claim 54 (Currently Amended): A heat spreader comprising:

a layer of DL material having major surfaces on each of opposite sides thereof, the layer of DL material including diamond particles having a diameter of at least 10 μm; and

a layer of CVD diamond in thermal contact with each of the major surfaces, with either one or both of the CVD diamond layers being bonded at least in part by epitaxy to exposed diamond particles of the DL material, wherein the matrix is silicon, silicon carbide, ~~copper, aluminum, silver~~ or a mixture of these,

wherein the layer of CVD diamond has an exposed surface with at least 30% of the exposed surface being occupied by diamond grains with a grain size of at least four times a thickness of the layer of CVD diamond.

Claim 55 (Previously Presented): A heat spreader according to claim 39, wherein the bonding by epitaxy between the layer of CVD diamond and the exposed diamond particles of the DL material is deliberately enhanced over that which might occur naturally using untreated, DL material.

Claim 56 (Previously Presented): A heat spreader according to claim 54, wherein the bonding by epitaxy between the layer of CVD diamond and the exposed diamond particles of the DL material is deliberately enhanced over that which might occur naturally using untreated DL material.

Claim 57 (Withdrawn-Currently Amended): A method of manufacturing a heat spreader comprising:

providing a diamond loaded (DL) material comprising a mass of diamond particles in a matrix and having an exposed surface with exposed diamond particles; wherein the matrix is silicon, silicon carbide, ~~copper, aluminum, silver~~ or a mixture of these,

growing a layer of CVD diamond onto the exposed surface of the DL material such that it is bonded to the exposed diamond particles at least in part by epitaxy,

wherein the exposed surface of the DL material is treated prior to growing the layer of CVD diamond thereon, thereby to enhance the epitaxy over that which would otherwise occur naturally using untreated DL material.

Claim 58 (Withdrawn): A method according to claim 57, wherein the exposed surface of the DL material is treated by a lapping process.

Claim 59 (Withdrawn): A method according to claim 55, wherein the lapping process is arranged to remove existing pitting, minimize further surface pitting, and maximize a surface area of the exposed diamond particles present in the exposed surface of the DL material suitable for epitaxy.

Claim 60 (Withdrawn): A method according to claim 59, wherein the surface pitting is removed and further pitting minimized by controlling diamond particle size distribution in the lapping process.

Claim 61 (Withdrawn): A method according to claim 60, wherein the lapping process is carried out in such a manner as to ensure that largest diamond particles are not more than 20% or 15 μm larger, whichever is most restrictive, than a mean particle size of the diamond particles in the exposed surface of the DL material.

Claim 62 (Withdrawn): A method according to claim 61, wherein the largest diamond particles are not more than 10% or 10 μm larger, whichever is the most restrictive, than the mean particle size of the diamond particles in the exposed surface of the DL material.

Claim 63 (Withdrawn): A method according to claim 57, wherein the layer of CVD diamond is continuous and without uncontrolled pits or holes.

Claim 64 (Withdrawn): A method according to claim 57, which exhibits substantial epitaxy at an interface between the layer of CVD diamond and the exposed diamond particles of the DL material.

Claim 65 (Withdrawn): A method according to claim 64, wherein the epitaxy covers an area of the interface exceeding 30%.

Claim 66 (Withdrawn): A method according to claim 65, wherein the epitaxy covers an area of the interface exceeding 50%.

Claim 67 (Withdrawn): A method according to claim 66, wherein the epitaxy covers an area of the interface exceeding 60%.

Claim 68 (Withdrawn): A method according to claim 67, wherein the epitaxy covers an area of the interface exceeding 70%.

Claim 69 (Withdrawn): A method according to claim 57, wherein the grown layer of CVD diamond has an exposed surface with at least 30% of the exposed surface being occupied by diamond grains with a grain size of at least four times a thickness of the layer of CVD diamond.

Claim 70 (Withdrawn): A method according to claim 69, wherein the diamond grains occupy at least 50% of the exposed surface of the layer of CVD diamond.

Claim 71 (Withdrawn): A method according to claim 70, wherein the diamond grains occupy at least 60% of the exposed surface of the layer of CVD diamond.

Claim 72 (Withdrawn): A method according to claim 71, wherein the diamond grains occupy at least 70% of the exposed surface of the layer of CVD diamond.

Claim 73 (Withdrawn): A method according to claim 57, wherein the layer of CVD diamond comprises epitaxial diamond grains that provide at least 30% of the volume of the layer of CVD diamond.

Claim 74 (Withdrawn): A method according to claim 73, wherein the epitaxial diamond grains provide at least 50% of the volume of the layer of CVD diamond.

Claim 75 (Withdrawn): A method according to claim 74, wherein the epitaxial diamond grains provide at least 70% of the volume of the layer of CVD diamond.

Claim 76 (Withdrawn): A method according to claim 57, wherein the DL material is provided in a form of a layer and the layer of CVD diamond is grown on a major surface of the layer of DL material.

Claim 77 (Withdrawn): A method according to claim 76, wherein opposed layers of CVD diamond are grown on respective opposed major surfaces of the layer of DL material, either one or both of the layers of CVD diamond being bonded at least in part by epitaxy to expose diamond particles of the DL material.

Claim 78 (Previously Presented): A heat spreader according to claim 39, wherein the diamond particles are dispersed throughout the DL material.

Claim 79 (Previously Presented): A heat spreader according to claim 39, wherein the DL material has a thickness of at least 10 μm.

Claim 80 (Previously Presented): A heat spreader according to claim 39, wherein the layer of CVD diamond has a thickness of 2-150 μm.